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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,340	01/11/2002	Elfido Coss JR.	2000.086400/TT4559	8005

23720 7590 07/28/2004

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HOUSTON, TX 77042

EXAMINER

DUNCAN, MARC M

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/044,340	Applicant(s) COSS ET AL.	
	Examiner Marc M Duncan	Art Unit 2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 8, 11, 12, 15, 16, 20-22, 26, 27 and 30 is/are rejected.
- 7) ☒ Claim(s) 4-6, 9, 10, 13, 14, 17-19, 23-25, 28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

Claims 7, 12 and 26 are rejected under 35 U.S.C. 112, second paragraph.

Claims 1, 2, 3, 7, 8, 11, 12, 15, 16, 20, 21, 22, 26, 27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Coronel et al.

Claims 4, 5, 6, 9, 10, 13, 14, 17, 18, 19, 23, 24, 25, 28 and 29 are objected to

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7, 12 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "said calculated fault" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 does not contain a period at the end of the claim. It is therefore unclear as to whether claim 12 is complete. The examiner has examined the claim under the assumption that the claim is complete.

Claim 26 recites the limitation "said calculated fault" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 3, 7, 8, 11, 12, 15, 16, 20, 21, 22, 26, 27 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Coronel et al.

Regarding claim 1:

Coronel teaches performing a first process on at least one semiconductor wafer in col. 14 lines 7-9. A measurement is an example of a process.

Coronel teaches acquiring data on at least one of a real time basis and a near real time basis in the Title. The invention is for real-time in-situ supervision; therefore the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness.

Coronel teaches storing said data in a database in col. 14 lines 15-17.

Coronel further teaches performing a fault analysis based upon said data acquired from said database based upon a trigger signal that causes data to be extracted from said database on a substantially real time basis in col. 14 lines 15-17,

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lines 34-37 and lines 39-43 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Regarding claim 2:

Coronel teaches performing a second process on a semiconductor wafer based upon processing modifications made in response to said fault detection in col. 14 lines 17-21.

Regarding claim 3:

Coronel teaches wherein acquiring metrology data from said first process of semiconductor wafer further comprises acquiring integrated metrology data using an integrated metrology tool in col. 15 lines 19-21 and lines 50-54.

Regarding claim 7:

Coronel teaches triggering said database for extracting said data in col. 14 lines 15-17 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

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Coronel teaches analyzing said data triggered from said database in col. 14 lines 34-37 and col. 15 lines 28-30.

Coronel teaches detecting a fault based upon said analysis of said triggered data in col. 15 lines 30-33.

Coronel further teaches performing a fault compensation process in response to a determination that said calculated fault is above a predetermined tolerance level in col. 15 lines 30-33.

Regarding claim 8:

Coronel teaches wherein triggering said database for extracting data further comprises providing a triggering signal to said database to extract said data from said database in col. 14 lines 15-17 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Regarding claim 11:

Coronel teaches wherein storing said data in a database further comprises storing said data in a real-time database in the Title and col. 14 lines 39-40.

Regarding claim 12:

Coronel teaches performing a first process on at least one semiconductor wafer in col. 14 lines 7-9. A measurement is an example of a process.

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Coronel teaches acquiring data on a substantially real-time basis in the Title.

The invention is for real-time in-situ supervision; therefore the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness.

Coronel teaches storing said data in a database in col. 14 lines 15-17.

Coronel teaches extracting said data from said database based upon a trigger signal directed to said database, said trigger signal being capable of extracting said data from said database at a substantially real-time rate in col. 14 lines 15-17 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Coronel further teaches performing a fault analysis based upon said extracted data acquired from said database in lines 34-37 and lines 39-43 and col. 15 lines 26-33.

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Coronel further teaches performing a second process on a semiconductor wafer based upon processing modifications made in response to said fault detection in col. 14 lines 17-21.

Regarding claim 15:

The claim is rejected as the apparatus for performing the method of claim 1.

Regarding claim 16:

Coronel teaches a process controller to perform a fault detection using substantially real-time data from a database in Fig. 7 - "35."

Coronel teaches performing a first process on at least one semiconductor wafer in col. 14 lines 7-9. A measurement is an example of a process.

Coronel teaches acquiring data on at least one of a real time basis and a near real time basis in the Title. The invention is for real-time in-situ supervision; therefore the data is acquired in real-time.

Coronel further teaches the data comprising at least one of a process state data, a tool state data, and an integrated metrology data resulting from said first processing of semiconductor wafer in col. 15 lines 14-15, lines 19-21 and lines 45-47. The process state data is represented by the process name, the tool state data is represented by the RF shutdown and the integrated metrology data is represented by the measurement of the photoresist layer thickness.

Coronel teaches storing said data in a database in col. 14 lines 15-17.

Coronel further teaches performing a fault analysis based upon said data acquired from said database based upon a trigger signal that causes data to be

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extracted from said database on a substantially real time basis in col. 14 lines 15-17, lines 34-37 and lines 39-43 and col. 15 lines 26-33. The sending of the wafer ID starts the process and starts the analysis of the sent signals. This is, therefore, equivalent to a trigger signal. The trigger signal causes the data to be acquired from the database. After the wafer ID is sent and the process starts, the sent signals are analyzed immediately, i.e. in real time, which requires the data to be acquired from the database and therefore necessarily includes a trigger signal to acquire the data.

Coronel further teaches a database operatively coupled to the process controller, said database to acquire said data in a substantially real-time basis and to provide said processed data to said process controller for performing said fault detection in Fig. 7 – “35 – Database.”

Regarding claim 20:

The claim is rejected as the computer program product for performing the method of claim 1.

Regarding claim 21:

The claim is rejected as the computer program product for performing the method of claim 2.

Regarding claim 22:

The claim is rejected as the computer program product for performing the method of claim 3.

Regarding claim 26:

The claim is rejected as the computer program product for performing the method of claim 7.

Regarding claim 27:

The claim is rejected as the computer program product for performing the method of claim 8.

Regarding claim 30:

The claim is rejected as the computer program product for performing the method of claim 11.

Allowable Subject Matter

Claims 4, 5, 6, 9, 10, 13, 14, 17, 18, 19, 23, 24, 25, 28 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art was not found that explicitly teaches or fairly suggests acquiring offline metrology data as outlined in claims 4 and 23. Prior art was not found that explicitly teaches or fairly suggests receiving data collection instructions from a data collection model processing data stored in a database, said processing comprising at least one of combining, merging, expanding and contracting at least portions of said data as outlined in claims 5, 13 and 24. Prior art was not found that explicitly teaches or fairly suggests triggering said database at a rate that is substantially the same as a rate of data flow into said database as outlined in claim 9 and 28. Prior art was not found that explicitly

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teaches or fairly suggests triggering said database at a rate that is lower than the rate of data flow into said database as outlined in claims 10, 14 and 29. Prior art was not found that explicitly teaches or fairly suggests the manufacturing model and the machine interface as outlined in claim 17. All other claims are considered allowable only in combination with all limitations of the base claims and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon contains elements of the instant claims and/or represents a current state of the art.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc M Duncan whose telephone number is 703-305-4622. The examiner can normally be reached on M-T and TH-F 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 703-305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

md


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